TJTSE50 2008

Jukka Heikkilä, Marikka Heikkilä
jups@jyu.fi, mheikkil@jyu.fi
• Transaction costs evaluation on last class lead to an slightly absurd outcome. Why?
  – Reductionist
  – Anti-systemic
  – Con-CATWOE

  – Let us redo the analysis
Not only efficient transactions
How to digitalize biz-relationships?

- **IMP = Industrial Marketing and Purchasing**
  - Dyadic relationships in the focus
  - Abductive research approach

- **Five schools of thought**
  - supply chain management,
  - the transaction cost analysis,
  - the political economy approach,
  - the relationship marketing,
  - Industrial Marketing and Purchasing (IMP) group framework
IMP Interaction model
(Håkansson, 1982; annotations Jups)
Digital bonds
(Salo, 2006)

- Digital bonds and activities on the digital infrastructures (read: architectures)
IOS – Inter-Organizational Systems  
Kumar & Van Dissel, 1996

- “ICT-based systems that transcend legal enterprise boundaries” (Bakos, 1991, p. 279)
- Lack of structural authority btw. participants
- “planned and managed cooperative ventures btw. participants” (p. 280)
- 3 arguments are needed to explain collaborative alliances
  - rational/economic,
  - technical and
  - socio-political arguments
Socio-tech. issues in IO relationships (Kumar & Van Dissel, 1996)

- Occurrence of unwanted socio-technical factors best prevented by anticipating them beforehand
  - Sustainable collaboration
    - Long-term relationships (builds on move-to-the middle)
    - Cooperation perceived as fair and beneficial by all involved
- Level and nature of interdependence are likely to influence the potential and source for conflict
  - Increased level of interdependence is likely to increase the potential for conflict by increasing the need for coordination
Structure of a relationship

(Kumar & Van Dissel, 1996)

• Level of structure influences the potential for conflict
• Structure formalizes:
  – The form, process and content of a relationship
• Implies a level of agreement about mutual expectations
  – Reduces equivocality
• Lack of structure contributes to the risk of conflict
• Influenced by the level and type of interdependence btw. participants
Structurability of an IO relationship 1/2
(Kumar & Van Dissel, 1996)

• “Ability or the potential to specify the structure”
• Pooled dependency has highest level of initial structure and its participants relationships are highly structurable
• Sequential dependency requires for the mutual expectations of participants to be clarified
• Reciprocal dependency has the lowest level of initial structure
Structurability of a relationship affects the possible coordination mechanisms to be used.

"Structurability of the relationship influences the degree to which... it can be programmed or embedded in the IOS:s”

"Three types of interdependence... and their level of structure are... likely to be reflected in the design of the IOS”

Therefore, managing a network with IS: s difficult
Network...

- Typical(?) view:
  - Enables and supports direct information sharing between all participants
  - Provides visibility throughout the network
  - Provides extensive availability of information for all participants

- The basic philosophy regarding value networks (often) assumes ‘perfect’ collaboration and underestimates socio-technical issues
Composition of a network

- Networks formed to meet business needs or to support business
  - Creation / participation in a of networks is seldom the driver of companies operations
  - Business units of a firm might have distinct networks (e.g., Holland & Lockett hypothesis)
- For a functional network to be created business and the processes need to be understood / modelled
  - These depend on the size of a company and its position in the network!
Companies surveyed categorized by size

<table>
<thead>
<tr>
<th>Buyer A (Large)</th>
<th>Buyer B (Large)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chain 1</strong></td>
<td><strong>Chain 1</strong></td>
</tr>
<tr>
<td>• Cable 1 (Large)</td>
<td>• Equipment 1 (SME)</td>
</tr>
<tr>
<td>• Cable 2 (Large)</td>
<td>• Equipment 2 (SME)</td>
</tr>
<tr>
<td><strong>Chain 2</strong></td>
<td><strong>Chain 3</strong></td>
</tr>
<tr>
<td>• Software 1 (Large)</td>
<td>• Equipment 3 (Large)</td>
</tr>
<tr>
<td>• Software 2 (Large)</td>
<td></td>
</tr>
<tr>
<td><strong>Chain 3</strong></td>
<td><strong>Chain 4</strong></td>
</tr>
<tr>
<td>• Component 1 (SME)</td>
<td>• Textile 1 (SME)</td>
</tr>
<tr>
<td>• Component 2 (SME)</td>
<td>• Textile 2 (SME)</td>
</tr>
<tr>
<td><strong>Chain 4</strong></td>
<td></td>
</tr>
<tr>
<td>• Textile 1 (SME)</td>
<td></td>
</tr>
<tr>
<td>• Textile 2 (SME)</td>
<td></td>
</tr>
</tbody>
</table>
## Information systems usage

<table>
<thead>
<tr>
<th></th>
<th>1999</th>
<th></th>
<th>2001</th>
<th></th>
<th>2003-2004</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1st tier</td>
<td>2nd tier</td>
<td>1st tier</td>
<td>2nd tier</td>
<td>1st tier</td>
<td>2nd tier</td>
</tr>
<tr>
<td>Invoicing</td>
<td>27</td>
<td>72</td>
<td>61</td>
<td>60</td>
<td>74</td>
<td>61</td>
</tr>
<tr>
<td>Ordering process</td>
<td>47</td>
<td>56</td>
<td>61</td>
<td>73</td>
<td>74</td>
<td>74</td>
</tr>
<tr>
<td>Material management</td>
<td>47</td>
<td>49</td>
<td>48</td>
<td>53</td>
<td>67</td>
<td>57</td>
</tr>
<tr>
<td>Production planning</td>
<td>33</td>
<td>39</td>
<td>35</td>
<td>53</td>
<td>49</td>
<td>48</td>
</tr>
<tr>
<td>Customer register</td>
<td>33</td>
<td>72</td>
<td>52</td>
<td>47</td>
<td>74</td>
<td>57</td>
</tr>
<tr>
<td>Management of customer contracts</td>
<td>20</td>
<td>15</td>
<td>22</td>
<td>40</td>
<td>26</td>
<td>30</td>
</tr>
<tr>
<td>Management of contract documents</td>
<td>40</td>
<td>21</td>
<td>30</td>
<td>53</td>
<td>36</td>
<td>44</td>
</tr>
<tr>
<td>Demand forecasts</td>
<td>40</td>
<td>28</td>
<td>30</td>
<td>73</td>
<td>62</td>
<td>52</td>
</tr>
<tr>
<td>Production information</td>
<td>53</td>
<td>49</td>
<td>48</td>
<td>60</td>
<td>72</td>
<td>65</td>
</tr>
<tr>
<td>Product information</td>
<td>53</td>
<td>46</td>
<td>39</td>
<td>60</td>
<td>67</td>
<td>65</td>
</tr>
<tr>
<td>Payment</td>
<td>33</td>
<td>67</td>
<td>65</td>
<td>53</td>
<td>96</td>
<td>78</td>
</tr>
</tbody>
</table>
Self-evaluation of survey-companies 1/3

Personnel's knowledge

The grade of IT equipment

POOR     SATISFACTORY     GOOD     EXCELLENT
Self-evaluation of survey-companies 2/3

Personnel’s knowledge

The grade of IT equipment

POOR  SATISFACTORY  GOOD  EXCELLENT
Self-evaluation of survey-companies 3/3

Personnel's knowledge

The grade of IT equipment

POOR    SATISFACTORY    GOOD    EXCELLENT
Overall survey results

- Companies regardless of size and status in the network use a variety of IS:s
- Trend for IS:s usage growth illustrated
- Investment need expectations varied extensively
  - Need for support functions under-estimated
  - The barrier of common views and expectations between 1st- and 2nd- tier
- Personnel’s expertise with IT and the grade of IT equipment mixed
Suppliers concerns on IOS (Heikkilä et al., 2003)

- Growth in uncertainty
  - Principals are reluctant to make long-term commitment
  - Systems built as if the relationship static
- The necessary investments underestimated
  - In IT, education, re-engineering and transformation
  - Multiple principals – problem
- The big picture unclear
- User skills vary a lot
- Lost momentum
- Strategic commitment can be a hazard
- Reluctant on acting upon one forecast data source only
Special concerns - suppliers

- Special concerns of 1st tier
  - Increase in the complexity of the operations
  - Increased need for coordination (previously handled by the OEM)
  - Ties up capital in stock (WIP and MIP)

- Special concerns of 2nd tier
  - Lose the connection to the end customer
  - Frustrated on irrelevant, out-of-context information
  - Have to submit data, the usage of which they are not aware
Concerns of focal companies

- Loss of control over the information
  - Additional costs due to extra control mechanisms
  - Below first tier, information can become distorted or irrelevant -> direct mechanisms needed
- Motivating for constant change
  - Organizational politics on the IOS
  - What if the project does not end – resources?
  - Order of change – own processes first
- Competing projects, background work, delays of interconnected ISD
- Increased rigidity
- Software licensing
- Incomplete integration leading to ‘islands-of-automation’
- Personnel turnover and long-term discrepancy
- Degradation of the implementation
Network level concerns

• Confirmation of the correctness of information
  – E.g. forecasting and planning system: triangulation from multiple parties needed to supplement missing information
  – Motivating personnel for change, learning and transformation
  – Code of conduct and proportionate sanctions
Research background
(Heikkilä, Vahtera & Reijonen, 2003)

• Outset of yet-another-IOS -study
  – IOS – implementation not too well researched, especially in need of how-to –ideas
    • Repeated implementation difficulties
• Multimethod case studies on nexus of organizations
  – Interviews (43 persons)
    • Representatives from strategy, management, designers, users
  – Web questionnaire (168 respondents, 50% rr)
  – Workshops (8)
  – Research project steering group (12)
• Action research?
What implementation?

• Implementation is the transition period from the start of the use of an Information System
  – in its real use context
  – by its real users
• Implementation ends when the system achieves a steady state performance
• Related issues
  – change management
  – support
  – maintenance and revision
• Recent experience shows that implementation has become the bottleneck
  – absorptive capacity limited
  – everything is interlinked
  – it is impossible to design some systems in advance
Organizational implementation

- Organizational implementation:
  - “means making a computer system accessible to those who could or should use it, and integrating its use into the routine work practices... (Kling & Allen, 1992)
  - Hence, it is an organisational change process
  - But, there seems to be a discrepancy between org. implementation and mainstream professional understanding of the implementation (i.e., rational process oriented IS-design)

- The system:
  - The organizations of the nexus are
    - of different size, capability, resources
    - operating in different modes
    - autonomous, but with vested interests
Implementation in SMEs

- IS development skills inadequate, but a necessity to develop
  - Org. implementation must aim at creating and articulating work activities
    - Process redesign: Hand-off reduction, inter-process coordination, minimization of customers waiting time
    - Domain specific modelling
    - Making it concrete: Role plays (etc)
- Persistent problems:
  - Complex ISs are beyond SMEs’ financial resources
    - Requires investments for highly uncertain future
      - technology, organization, business model
    - Underestimation of long term costs
  - Discontinous development projects
    - Hard to find profitable ways of long-term development
  - Too many relationships and interconnected processes (with multiple principals and partners)
Change management?

The Change Curve of the IS Implementation

With Effective Change Management

Normal Change Curve

IS B Implementation Curve

ELEKTROINEN LIIKETOIMINNAN LINJA

28
## Intra-organizational Implementation in Large Organizations (Beer et al., 1990)

### Level of Focus

<table>
<thead>
<tr>
<th>Intervention seeks to modify</th>
<th>Unit level</th>
<th>Individual or group level</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Informal behavior</strong></td>
<td>Redefinition of roles, responsibilities, relationships</td>
<td>Coaching/Counseling, Training, Process consultation, Team building</td>
</tr>
<tr>
<td><strong>Formal design</strong></td>
<td>Compensation systems, Information systems, Organizational structure, Measurement system</td>
<td>Replacement, Recruitment, Career pathing, Succession planning, Performance appraisal</td>
</tr>
</tbody>
</table>
Observed IOS Implementation Problems

- **No-freeze**
  - Continuous revisions due to
    - constantly emerging requirements
    - fundamentally different operating modes
  - Domain of implementation in an unstable state
    - Non-standardized ways of inter-operation

- **Reducing set of functions**
  - Promises given to the intended users evaporate
  - User groups start to hesitate

- **Difficulty to express the functionality and benefits in a concrete manner**
  - Concepts and objectives unclear

- **The IOS-context is simply overwhelming** (next slide)
Spheres of inter-organizational change

II Mutual relationships
-matching ISs and operating modes

I Organisational change processes
-s.t. situation
-s.t. operation mode

III Network level changes

I Organisational change processes
-s.t. situation
-s.t. operation mode
Suggested (and Accepted) Way of Implementing IOSs

- Define, introduce & implement work practices first with main actors (strategic alignment) then in-cooperation with the actual users (getting things done)
- Articulate objectives, true costs and performance improvement metrics in concrete terms
- Feasible level of system integration depends on the similarity of operation modes (don’t try to change everything at once)
- Objectives need to be tangible for the SMEs
  - Requirements derived from SMEs’ preferred objectives
- Aim at immediate tangible benefits
  - through simplest integration, or
  - third party integrators
- Repeat the above at the levels of company, dyadic relationships, and whole network
Inter-partner learning in global supply chains (Andersen & Christensen, 2000)

• A model of
  – the processes influencing inter-partner learning in international subcontractor relationship

• shared skill development a crucial factor

• demonstrates how the inter-partner diversity impedes this process
A system based model of skill development (Andersen & Christensen, 2000)
Development of shared skills

depends on the mutual commitment of actors
  – commitment relates to the expected gain
    • i.e. if the expected benefits > expected costs
      firms are willing to commit resources
  • decisions to collaborate partly/completely based on trust
    – firms do not commit large resources at one go
    – when trust gradually builds up more resources
      are invested in the relationship
  • partners are constantly evaluated according to the firm’s expectations (reciprocity and fairness)
Development of shared skills

- depends on division of work between the partners
  - complexity of product architecture (interdependency of components)
    - e.g. alterations in fighter jets must be carefully coordinated
    - e.g. bicycles, a collection of standard components
  - complexity of process task (specification, codifiability of knowledge)
    - explicit (IKEA & subcontractors)
      - low dependency, easier to switch subcontractor
    - specifies a problem area, subcontractor develops the specifications (Ericsson & ICCC)
      - higher dependency on a particular subcontractor
Skill boundary interface

- **Absorptive capacity**
  - ability to recognize the value of new information, assimilate and apply it to commercial ends (Cohen and Levinthal, 1990)
  - history and path dependent, which means that it will be built incrementally on the existing knowledge (and most likely nowadays on ICT-infrastructure).

- **Communicative capacity**
  - ability to help others to understand what we are doing or saying and to absorb tacit knowledge (Nootoeboom, 2002).
Inter-firm diversity

- **Organizational diversity**
  - ideologies and values of the firm
  - career profiles, attitudes toward work
  - managerial styles
  - planning cycles
- **Strategic diversity**
  - time horizons
  - scope, importance
- **Cultural diversity**
  - norms and values
  - language
CASE: NOVO Nordisk

1. Link between process factors and outcome factors
   - Failing communication internally in Novo Nordisk leads to unintended signals toward Nissho, thus reduces inter-partner confidence
   - Frequent visits, exchange of personnel and of prototypes enhances shared division of labour in the subcontractor relationship
2. Link between situational factors and process factors
   - Cultural diversities breeds language problems and different approaches to problem-solving communication and absorption of knowledge
   - Technological diversity complicates initial perceptions of the complexity
   - Shared strategic interests motivate firms in their willingness to absorb and communicate information
3. Link between situational factors and outcome factors
   - Changing strategic intentions promotes failing confidence and reduced collaborative efforts
   - Evolved shared understanding of technology has smoothed coordination efforts
4. Feedback loops from outcome factors to process factors and situational factors
   - Collaborative experience have improved mutual understanding and reduced communication barriers
   - Positive results from collaborative efforts have strengthened shared strategic interests
CASE: NOVO Nordisk

• Subcontractor Nissho co-operated in developing the needle and produced them.
Sharing for Understanding and Doing for Learning (Heikkilä et al, 2004c)

- Companies are constantly renewing their operations.
  - to be innovative and proactive
  - not only reacting to the changes in the business environment, but
  - structuring their own environments (Brown & Duguid 1991).
- Innovations are derived largely
  - from knowledge exchange and learning between firms (Nooteboom, 2000).
- It takes time to build trust and learn to work together and adjust operation within partners (Ariño et al, 2001).
Organizational Learning
(Heikkilä et al, 2004c)

- Challenges for organizations
  - To reduce uncertainty and equivocality (sense-making)
- Organizational learning (Argyris & Schön, 1978)
  - Single-loop learning
    - simple behaviour adjustment in an error situation
  - Double-loop learning
    - existing rules or procedures are modified
  - Deutero-learning
    - organizational problem-solving capacity
    - understanding single- and double-loop learning in order to increment them
    - individuals and organizations should be provided with the conditions necessary for learning
Learning organization
(Heikkilä et al, 2004c)

- Knowledge creation (Nonaka, 1994)
  - Dialogue, conflicting views
- Enablers for organizational learning in the context of learning networks
  - Open discourse and reference models (e.g. Nonaka & Takeuchi, 1995)
  - Members with differing backgrounds and history need to achieve a shared vision of desired future
  - balancing cognitive distance and cognitive proximity
- Boundary objects (Brown & Duguid, 1991)
  - the mental models that are shared and discussed about in the process of learning
  - means for exchanging or communicating the perspectives of co-operating parties
- Communities of practice (Brown & Duguid, 1991)
  - teams, boundary spanners
Learning Business Network
(Heikkilä et al, 2004c)

- Org. diversity (memory, capabilities, resources), Strategic diversity and Cultural diversity
- Deutero learning for the network
- Methods for learning
- Who form the core and what the parties contribute to the business model?
- Reality check of the business model with customers, such as Proof-of-Concepts, trials/pilots
- Reality check of the business model within network
- Network coordination for business model development and implementation
- How to implement the business model together?
  - Matching int/ext processes
  - Integration of ICT and service architecture
- Pressures for change (competition, profitability, technical change etc)
- Consortium boundary

Network coordination for business model development and implementation
The different backgrounds, histories and contexts of the consortium parties
- makes it impossible to do simple data aggregation
- requires rethinking of the meaning of the information in relation with the business model

Who form the core and what the parties contribute to the business model?

How to implement the business model together?
- Matching int/ext processes
- Integration of ICT and service architecture

Org. diversity (memory, capabilities, resources), Strategic diversity and Cultural diversity

Methods for learning

Reality check of the business model with customers, such as Proof-of-Concepts, trials/pilots

Network coordination for business model development and implementation

Deutero learning for the network

Pressures for change (competition, profitability, technical change etc)
Who form the core and what the parties contribute to the business model?

How to implement the business model together?

• Matching int/ext processes
• Integration of ICT and service architecture

Org. diversity (memory, capabilities, resources), Strategic diversity and Cultural diversity

Deutero learning for the network

Methods for learning

Who form the core and what the parties contribute to the business model?

Reality check of the business model within network

Network coordination for business model development and implementation

Pressures for change (competition, profitability, technical change etc)

Consortium boundary

Reality check of the business model with customers, such as Proof-of-Concepts, trials/pilots

Examples of methods for learning:
• Workshops and brainstorming sessions
• Homeworks
• Scenarios
• Role plays
• Benchmarks that serve as analogies
• Person-to-person confidential discussions

Examples of methods for learning:
• Workshops and brainstorming sessions
• Homeworks
• Scenarios
• Role plays
• Benchmarks that serve as analogies
• Person-to-person confidential discussions
There is an ongoing discussion on the core partners and their contribution to the business model. Assets, capabilities, customer relationship, finance and the capacity of the parties in meeting the needs of the customers.
Who form the core and what the parties contribute to the business model?

How to implement the business model together?

- Matching int/ext processes
- Integration of ICT and service architecture

Org. diversity (memory, capabilities, resources), Strategic diversity and Cultural diversity

Deutero learning for the network

Methods for learning

Reality check of the business model within network

Consortium boundary

Reality check of the business model with customers, such as Proof-of-Concepts, trials/pilots

The business model should be checked internally

Pressures for change (competition, profitability, technical change etc.)

Network coordination for business model development and implementation

Methods for learning

Who form the core and what the parties contribute to the business model?

- Matching int/ext processes
- Integration of ICT and service architecture

Network coordination for business model development and implementation

Org. diversity (memory, capabilities, resources), Strategic diversity and Cultural diversity
Who form the core and what the parties contribute to the business model?

How to implement the business model together?

• Matching int/ext processes
• Integration of ICT and service architecture

Org. diversity (memory, capabilities, resources), Strategic diversity and Cultural diversity

Deutero learning for the network

Methods for learning

Pressures for change (competition, profitability, technical change etc)

Consortium boundary

Reality check of the business model with customers, such as Proof-of-Concept, trials/pilots

Reality check of the business model within network

Proof-of-concept is needed to:
• illustrate viability of the business model
• give it a final round of corrections
• serve as a reality check for the consortium, reveal the assumptions on the roles and the contribution.
Who form the core and what the parties contribute to the business model?

How to implement the business model together?

- Matching int/ext processes
- Integration of ICT and service architecture

Org. diversity (memory, capabilities, resources), Strategic diversity and Cultural diversity

Deutero learning for the network

Methods for learning

Reality check of the business model within network

Who form the core and what the parties contribute to the business model?

Pressures for change (competition, profitability, technical change etc)

Network coordination for business model development and implementation

This includes the effective ways to
- conduct and develop business processes, both within and between parties, and
- the use of communication tools and documents, databases and other content for sharing information between parties.
Learning networks differ from learning organizations?
- different histories
- partially conflicting business goals
- learning in several levels:
  - within organizations
  - Dyadic
  - network

- complexity

A learning cycle of networks
- in creating a boundary object – the joint business model for the parties of the network
- Joint business model servers a crucial task in balancing between a relational contracting and mere trust
  - it is a way to make the roles, investments, costs and revenue sharing etc. understandable for each of the partners
What does a business model cover? (reflected upon Osterwalder & Pigneur’s Business Model Ontology, 2002)

- Between the strategy and implementation?
How does a business model work?
(based on Osterwalder & Pigneur, 2002)

- From innovation to customer to infrastructure to financial performance (and back)
  - few think it that way (Hedman & Kalling, 2002)
  - shadowed are has been studied extensively
ICT and business value
(Mooney et al., 1996)

- in order to gain from IT
  - development, implementation and learning takes time
  - networked production
    - more complex processes
  - networked globalization
- Less control - more persuasion and incentives
For joint, long term relationship design

- Service Design
- Technology Design
- Customer Relationship Design
- Organization of Network Design
- Finance Design
Manufacturing

Project delivery management

Service solutions

Mode of Co-operation

In-house

Subcontracting

Partnering

Business Network Topology

IS-architecture

+project management systems, intranet, extranet, cscw

Core Competence

Mode of Co-operation

Business Network Topology

IS-architecture

Relative time

Company, Customer, Supplier, Partner, Rival
Business Logic Triangle
(Osterwalder & Pigneur, 2002)

- **Strategies**
- **Business Models**
  - Conceptual
- **Business Processes**

Describes e.g. product, infrastructure, financials and customers, and their relationships
Tells how to implement a business strategy
Business Logic Triangle
in the context of business network

Strategies

Business Models

Business Processes

Network
Building the Network:
Adjustment processes (lateral)

Adjust Network Business Model & Strategies of the companies

Align at least some of the processes and ensure data compatibility

Strategies

Business Models

Business Processes

1. Inter-Organizational strategic adjustment

2. Inter-Organizational process adjustment
Building the Network:
Adjustment processes (vertical)

Intra-Organizational
Strategy–Processes adjustment
due to co-operation

Inter-Organizational
Strategic adjustment

Inter-Organizational
Process adjustment

3.

Business Processes

Business Models

Strategies
Building the Network: Fourth Adjustment Process

The articulated need for new knowledge, partners, infrastructure etc.

Strategies

Business Models

Business Processes

Inter-Organizational Strategic adjustment

Inter-Organizational Process adjustment

Intra-Organizational Strategy–Processes adjustment due to co-operation
Summary

- A conceptual framework: Joint development of network business models

4 Critical Adjustment Processes

1. The joint business model must be adjusted to individual strategies of the companies

2. Adjustment (although more concrete) should be done between the joint business model and actual business processes of each company

3. A ‘vertical’ adjustment within each company to align the strategies and processes to meet the challenges of co-operation and absorbing innovations

4. The model is also helpful in recognizing the needs for new resources, capabilities, partners, etc., to fill in the gaps in the capabilities and resources of current partners.
For joint, long term relationship design – combining lessons learnt
CSOFT metamodel

- CSOFT metamodel consists of
  - Business model concepts and their relationships (ontology)
    - domain specification at large
  - Processes for
    - design
    - in co-operation
    - negotiating
    - multi-stage process
    - operating
    - feedback, learning
  - Case specific limitations & restrictions

- Limitations & restrictions
  - Non-collusion – competition & neutrality
  - SEC-rules
    - Securities and Exchange Commission (SEC)
  - Trade Unions
    - Availability of capable personnel
  - Work protection standards & laws
  - Work permissions
  - NDAs
  - Tax deduction & reliefs rules
Metamodel for Joint Business Model Development

Ontology CSOFT + Process

Idealistic/Generic Business Model

Realized instance of the ideal Business Model

Reality Check

Case & Customer specific limitations and restrictions

Offering limitation of the Collaborative Networked Organization

Triangulation Reflection
Interface between platforms and tech

- Technology platform (and a *business model*):
  - strategic alignment
  - partner & customer interoperability
  - support for processes
  - fit with architecture
  - fit with generic services
  - change management